

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Clyde M. Guest et al.

Examiner: Brian P. Werner

Serial No.: 09/848,479

Group Art Unit: 2621

Filed: May 3, 2001

Docket No.: A126.164.102

Title: SYSTEM AND METHOD FOR SELECTION OF A REFERENCE DIE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

Dear Sir:

We, Clyde M. Guest, Rajiv Roy, and Charles K. Harris, declare as follows:

1. We are the named inventors of the subject matter described and claimed in the above-identified U.S. Patent Application Serial No. 09/848,479 filed May 3, 2001, which is a continuation of U.S. Patent No. 6,252,981, filed March 17, 1999.

2. We make this declaration in support of the patentability of the claims of U.S. Patent Application Serial No. 09/848,479.

3. This Declaration under 37 C.F.R. § 1.131 is made in response to the rejection of claims 73-75, 77-79, 84, 85, and 88-97 under 35 U.S.C. § 103 based upon various combinations of references, all including Gallarda, U.S. Patent No. 6,539,106 ("Gallarda"), filed on January 8, 1999.

4. Prior to the Gallarda filing date of January 8, 1999, we reduced the above-identified invention to practice. As factual evidence of our reduction to practice prior to January 8, 1999, attached hereto are Exhibits A and B.

Declaration under 37 C.F.R. § 1.131

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5. Exhibit A is a portion of a version history of a software archive. The software archive relates to a software package we developed for performing die inspection as part of a die inspection system as described in the pending application. In particular, the software archive of Exhibit A shows dates associated with the prototyping of improvements, or version changes, of an automatic reference selection function incorporated into the software package. The automatic reference selection function performs automatic reference image selection based upon a first die image and a second die image. We realized several function improvements to Version 1. For example, at least as of Version 9 (December 18, 1997), we had prototyped selecting two or more reference images, where each reference image is selected from a different predetermined region of a silicon wafer. This history of diligent improvement has been memorialized using Microsoft® SourceSafe®. Exhibit A is a printout of a portion of that history.

6. Exhibit B is a portion of another version history of a software archive. The software archive shows dates associated with the prototyping of improvements, or version changes, of a pattern comparison subroutine, which creates a difference image usable to select a reference die. The subroutine is used in association with the automatic reference selection function of Exhibit A. We realized several subroutine improvements to Version 1. For example, at least as of Version 10 (November 11, 1997), we had prototyped use of a slope detector for dynamic thresholding. As another example, at least as of Version 26 (July 8, 1998), we had prototyped size filtering, for example determining whether a difference image contains unacceptable data by determining whether a number of areas having data deviations exceed a predetermined allowable number of areas having image data deviations. This history of diligent improvement has been memorialized using Microsoft® SourceSafe®. Exhibit A is a printout of a portion of that history.

6. The parent application, U.S. Patent Application Serial No. 09/270,607, was filed on March 17, 1999. Thus, it is respectfully submitted that the subject matter of the pending application was also constructively reduced to practice with reasonable diligence.

Declaration under 37 C.F.R. § 1.131

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7. We respectfully submit that we possessed the subject matter of U.S. Patent Application Serial No. 09/848,479 prior to March 17, 1999, we diligently reduced the subject matter to practice from a date prior to the filing of Gallarda, and we diligently and constructively reduced our invention to practice by filing with the U.S. Patent and Trademark Office U.S. Patent Application Serial No. 09/270,607 on March 17, 1999 now U.S. Patent No. 6,252,981 issued on June 26, 2001. Thus, Gallarda should be removed as a prior art reference in the above-referenced rejection.


8. We declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or a patent issued thereon.


Clyde M. Guest

11/10/05
Date

Rajiv Roy

Date


Charles K. Harris

Nov. 10, 2005
Date

FROM : RR__

FAX NO. : 9724911690

Nov. 10 2005 03:43PM P1

Declaration under 37 C.F.R. § 1.131

Applicant: Clyde M. Guest et al.

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Filed: May 3, 2001

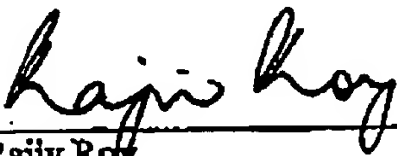
Docket No.: A126.164.102

Title: SYSTEM AND METHOD FOR SELECTION OF A REFERENCE DIE

7. We respectfully submit that we possessed the subject matter of U.S. Patent Application Serial No. 09/848,479 prior to March 17, 1999, we diligently reduced the subject matter to practice from a date prior to the filing of Gallarda, and we diligently and constructively reduced our invention to practice by filing with the U.S. Patent and Trademark Office U.S. Patent Application Serial No. 09/270,607 on March 17, 1999 now U.S. Patent No. 6,252,981 issued on June 26, 2001. Thus, Gallarda should be removed as a prior art reference in the above-referenced rejection.

8. We declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or a patent issued thereon.

Clyde M. Guest

Date

Rajiv Roy

Nov 10th, 2005

Date

Charles K. Harris

Date

mcatsupa

\$/Backup/SerComm/mcatsupa.cpp

```
***** Version 10 *****
Label: MCAT_SERCOMM_6
User: Maxquest      Date: 1/22/98  Time: 7:11p
Checked in $/mcat/SerComm
Comment:
  Allow early disqualification of set-up dies.
Fixed bugs in edge set-up.
Label comment:
```

```
*****
Label: MCAT_SERCOMM_5
User: Maxquest      Date: 12/18/97  Time: 8:25p
Labeled 'MCAT_SERCOMM_5'
```

```
***** Version 9 *****
User: Maxquest      Date: 12/18/97  Time: 8:25p
Checked in $/mcat/SerComm
Comment:
  Force set-up to use edge dies.
```

```
*****
Label: MCAT_SERCOMM_4
User: Maxquest      Date: 12/02/97  Time: 7:45a
Labeled 'MCAT_SERCOMM_4'
```

```
*****
Label: MCAT_SERCOMM_3
User: Maxquest      Date: 11/26/97  Time: 8:11a
Labeled 'MCAT_SERCOMM_3'
```

```
*****
Label: MCAT_SERCOMM_2
User: Maxquest      Date: 11/24/97  Time: 7:53p
Labeled 'MCAT_SERCOMM_2'
Label comment:
  Version updates:
```

```
  sub-die software
  review camera
  die-level threshold
```

```
***** Version 8 *****
User: Maxquest      Date: 11/07/97  Time: 12:00p
Checked in $/mcat/SerComm
Comment:
  Fixed sub-die setup code.
```

```
***** Version 7 *****
User: Maxquest      Date: 10/20/97  Time: 7:06p
Checked in $/mcat/SerComm
Comment:
  Added sub-die support.
```

```
*****
Label: MCAT_SERCOMM_1
User: Maxquest      Date: 10/11/97  Time: 2:02p
Labeled 'MCAT_SERCOMM_1'
Label comment:
  First working version of sercomm.
```

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EXHIBIT A

shotmod

***** Version 32 *****
User: Rahul Date: 7/27/98 Time: 6:52p
Checked in \$/AVI/DevSpec
Comment:
Changed Code not to do Analysis on die's with Ink Dot's
Changed to clear User regions before process

***** Version 31 *****
User: Maxquest Date: 7/21/98 Time: 3:21p
Checked in \$/AVI/DevSpec
Comment:
Adjusted defect position from pixels to microns

***** Version 30 *****
User: Cblumreich Date: 7/09/98 Time: 9:20a
Checked in \$/AVI/DevSpec

***** Version 29 *****
User: Maxquest Date: 7/09/98 Time: 9:00a
Checked in \$/AVI/DevSpec
Comment:
A little code clean up and commenting

***** Version 28 *****
User: Maxquest Date: 7/08/98 Time: 6:40p
Checked in \$/AVI/DevSpec
Comment:
Changed some of the defect filtering, should be much closer to correct now

***** Version 27 *****
User: Maxquest Date: 7/08/98 Time: 3:57p
Checked in \$/AVI/DevSpec
Comment:
Blobs should now be analysed and accounted for.
Defect data is now sent to the mapper.

***** Version 26 *****
User: Maxquest Date: 7/08/98 Time: 12:02p
Checked in \$/AVI/DevSpec
Comment:
Added use of user regions to testing.
Added new function BlobFilter to select defects by criteria.
Added Minimum Diameter and Area to Process Options Page.
Added Enable Blob Analysis to AVI Options Page

***** Version 25 *****
User: Maxquest Date: 7/07/98 Time: 9:41a
Checked in \$/AVI/DevSpec
Comment:
Positioned the UserRegionMenu correctly when the image is scrolled across.
Removed the SENSITIVITY enum from DecSpecData

***** Version 24 *****
User: Maxquest Date: 7/06/98 Time: 4:49p
Checked in \$/AVI/DevSpec
Comment:
Fixed User Region Default parameter bug.
Fixed the menu to popup at the cursor.

***** Version 23 *****
User: Maxquest Date: 7/06/98 Time: 11:38a
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EXHIBIT B

shotmod

checked in \$/AVI/DevSpec

Comment:

Changed to accomodate UserRegions

***** Version 22 *****

User: Maxguest Date: 7/02/98 Time: 6:20p

Checked in \$/AVI/DevSpec

Comment:

First attempt at user regions instead of sensitive areas.
There are a few holes which still need filling in, known holes are marked with
an ASSERT(FALSE). Also need to add the single right button handler and the call
chain for that.

Label: Version_1.1

User: Maxguest Date: 6/10/98 Time: 4:26p

Labeled 'Version_1.1'

Label comment:

Hiji update, motorized optics, 6/10/98

***** Version 21 *****

User: Maxguest Date: 5/20/98 Time: 9:34a

Checked in \$/AVI/DevSpec

Comment:

Changed RUN_DIAG to receive tolerance levels and return results

***** Version 20 *****

User: Maxguest Date: 5/11/98 Time: 10:01a

Checked in \$/AVI/DevSpec

***** Version 19 *****

User: Maxguest Date: 5/07/98 Time: 1:31p

Checked in \$/AVI/DevSpec

Comment:

Added the TestLightLevel ,checkSystemLight and CheckSytemMag
for the Diagnostics.

***** Version 18 *****

User: Maxguest Date: 4/30/98 Time: 2:06a

Checked in \$/AVI/DevSpec

Comment:

Added pointer to CAVIDoc so that temporary changes to the process
parameters can be made while inspecting.

Added TestInk() function.

Added m_uTripIncrease

Do not reallocate blob buffers unless needed. Prevents Mil crash.

***** Version 17 *****

User: Maxguest Date: 3/17/98 Time: 4:57p

Checked in \$/AVI/DevSpec

Comment:

Added AlignOffset member to compensate for camera angle on
multi-die.

***** Version 16 *****

User: Maxguest Date: 2/24/98 Time: 8:32p

Checked in \$/AVI/DevSpec

Comment:

Added imager defect mapping

***** Version 15 *****

User: Maxguest Date: 2/12/98 Time: 7:14p

Checked in \$/AVI/DevSpec

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EXHIBIT B

shotmod

Comment:

Fixed memory leak in Test function.

***** Version 14 *****

User: Maxquest Date: 2/10/98 Time: 1:43p

Checked in \$/AVI/DevSpec

Comment:

Modified the sequence of blob analysis during chip testing.

***** Version 13 *****

User: Maxquest Date: 1/31/98 Time: 11:26a

Checked in \$/AVI/DevSpec

Comment:

Process sensitive areas separately.

***** Version 12 *****

User: Maxquest Date: 1/23/98 Time: 11:52a

Checked in \$/AVI/DevSpec

Comment:

Added separate trip values for each die in the inspection array.
Added new processing parameters.

***** Version 11 *****

User: Maxquest Date: 12/03/97 Time: 1:26a

Checked in \$/AVI/DevSpec

Comment:

Changed total fail count to be per die.
Allow parameter to set sensitivity boost.

***** Version 10 *****

User: Maxquest Date: 11/20/97 Time: 11:07a

Checked in \$/AVI/DevSpec

Comment:

Added software for scaling threshold to brightness.
Added code to lower threshold in designated sensitive areas.
Added dynamic thresholding to set trip value on each die based on the intensity histogram.
Fixed bug in sub-die expected Y position.

***** Version 9 *****

User: Maxquest Date: 9/17/97 Time: 5:03p

Checked in \$/AVI/DevSpec

Comment:

Clip bond pad mask to be within buffer boundaries

***** Version 8 *****

User: Maxquest Date: 8/26/97 Time: 7:43p

Checked in \$/AVI/DevSpec

Comment:

Made sub-pixel alignment optional.
Aligned reference image to live image when displaying.
Force buffer sizes to match model size when reading in stored reference images.

***** Version 7 *****

User: Maxquest Date: 7/15/97 Time: 7:32p

Checked in \$/AVI/DevSpec

Comment:

***** Version 6 *****

User: Maxquest Date: 6/27/97 Time: 6:49p

Checked in \$/AVI/DevSpec

Comment:

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EXHIBIT B

shotmod
Modified std dev image calculation to use less memory.

***** Version 5 *****
User: Maxguest Date: 6/27/97 Time: 4:46p
Checked in \$/AVI/DevSpec
Comment:
Multiple changes

***** Version 4 *****
User: Maxguest Date: 3/07/97 Time: 8:50p
Checked in \$/AVI/DevSpec
Comment:
Added more integration with Mapper

***** Version 3 *****
User: Maxguest Date: 2/05/97 Time: 7:10p
Checked in \$/AVI/DevSpec
Comment:
Added multi-die capability

***** Version 2 *****
User: Maxguest Date: 1/24/97 Time: 6:42p
Checked in \$/AVI/DevSpec
Comment:
Added AVI inspection code

***** Version 1 *****
User: Maxguest Date: 1/23/97 Time: 1:00p
Created ShotMod.cpp
Comment: